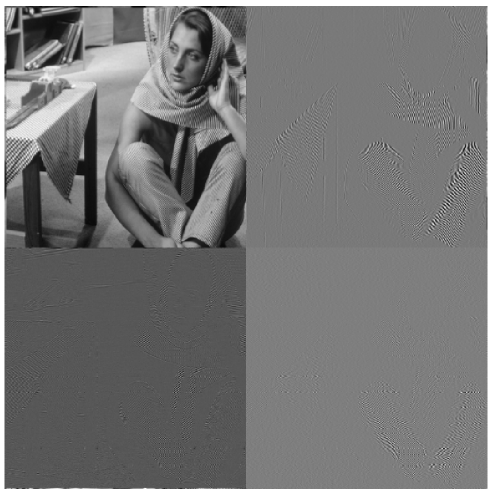
Vision, Optimization and Learning Group
Institute of Computer Graphics and Vision (ICG)
Graz University of Technology

Learning Wavelets for Image Understanding

Bachelor/Master's Thesis

Objective

The wavelet decomposition has been a powerful tool for several applications in image analysis, denoising and compression. It is able to analyze signals and images in the frequency domain, while keeping some locality information, contrary to the Fourier transform. With a paradigm shift towards learned methods for computer vision, adaptable wavelets could fusion advantages of a strong mathematical model, with machine learning. The focus of this Thesis lies on conducting experiments to study the impact of hyper-parameters of the system (Bachelor) and trying to integrate merits of other methods into the existing approach (Master).



What we want

- Student of Biomedical Engineering, Information and Computer Engineering, Computer Science or Software Engineering and Management
- Basic knowledge in computer vision and optimization (Master)
- Basic programming experience in Python
- Interest in numerical optimization

What we offer

- Gain hands-on experience in Python, Numpy (Scientific Computing) and Tensorflow (Machine Learning, GPU Programming)
- Opportunity to be creative and experiment with different approaches
- Work amidst a team of researchers

Contact

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